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(71) Applicant (for all designated States except US): STERBA, Miroslav [CZ/CZ]; Taussigova 1172, 182 00 Praha 8 (CZ).

(72) Inventor; and

(75) Inventor/Applicant (for US only): NAVRATIL, Oldrich [CZ/CZ]; Babylon c. 48, 345 06 Domazlice (CZ).

(74) Agents: ANDERA, Jiri et al.; Rott, Ruzicka & Guttmann, P.O. Box 94, 170 00 Praha 7 (CZ).

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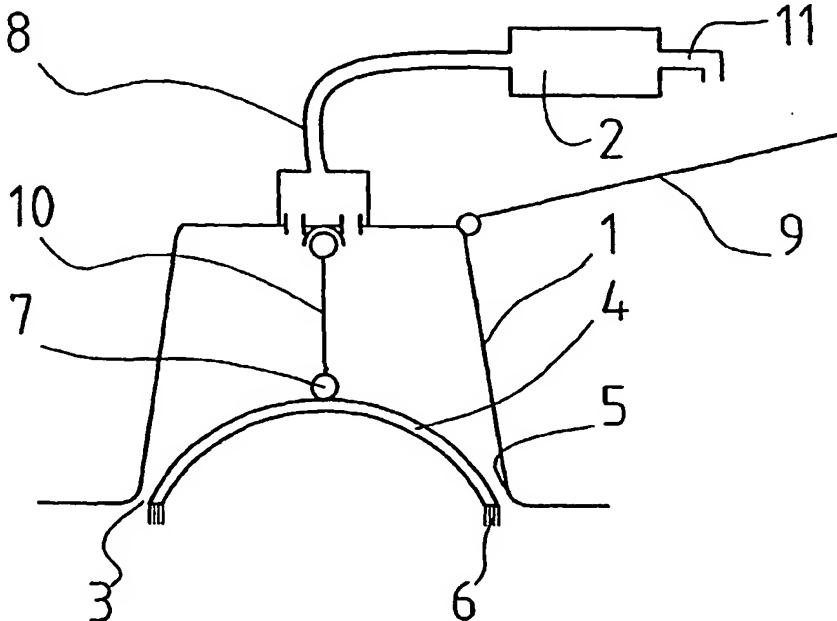
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(54) Title: VACUUM CLEANER FOR RESERVOIRS



(57) Abstract: A vacuum cleaner for reservoirs, especially swimming pools, comprising a working chamber (1) provided with an inlet (3) for liquid, connected with a vacuum generating unit (2). Between the inlet (3) of liquid and the vacuum generating unit (2) there is a rotary-shaped rolling rotor (4) placed in the flow of drawn in liquid. The rolling rotor (4) being arranged in swivelling and rotary manner and encompassed with a surface (5) for rolling. In the contact point between the rolling rotor (4) and the surface (5) for rolling the rolling rotor (4) has smaller diameter than the surface (5) for rolling. The rotor (4) is connected with at least one brush (6).

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# INTERNATIONAL SEARCH REPORT

Internal application No  
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A. CLASSIFICATION OF SUBJECT MATTER  
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According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 799 351 A (FRENTZEL HERMAN E ET AL) 1 September 1998 (1998-09-01) column 4, line 53 -column 8, line 59; figures 1-9 ---	1, 3-7
A	US 5 044 034 A (IANNUCCI ANTHONY A) 3 September 1991 (1991-09-03) the whole document ---	1, 4-7
A	EP 0 558 337 A (SEBOR PAVEL) 1 September 1993 (1993-09-01) column 9, line 1 -column 14, line 39; figures 1-11 ---	1, 4-7
A	EP 0 475 736 A (PEARCE RONALD JAMES) 18 March 1992 (1992-03-18) column 3, line 3 -column 7, line 18; figures 1-8 ---	1, 4-6
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Patent family members are listed in annex.

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European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax (+31-70) 340-3016

Authorized officer

Stefanescu, R

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 99 61790 A (SEDLACEK MIROSLAV ;HOSTIN STANISLAV (SK)) 2 December 1999 (1999-12-02) cited in the application page 4, line 9 -page 8, line 11; figures 1-5 -----	1

## INTERNATIONAL SEARCH REPORT

Int'l Application No  
PCT/CZ 03/00035

Patent document cited in search report	Publication date		Patent family member(s)	Publication date	
US 5799351	A	01-09-1998	US 5379473 A US 5293659 A AU 685529 B2 AU 8090994 A BR 9407983 A CA 2175364 A1 DE 69430135 D1 DE 69430135 T2 EP 0726998 A1 ES 2179852 T3 WO 9512730 A1 ZA 9408388 A AU 686268 B2 AU 8091094 A BR 9407948 A CA 2175208 A1 DE 69425754 D1 DE 69425754 T2 EP 0726999 A1 ES 2153437 T3 WO 9512731 A1 ZA 9408386 A US 5428854 A AU 643831 B2 AU 8461291 A BR 9104046 A CA 2051936 A1 DE 69123524 D1 DE 69123524 T2 EP 0476413 A2 ES 2096607 T3 HK 1008060 A1 NZ 239886 A ZA 9107026 A		10-01-1995 15-03-1994 22-01-1998 23-05-1995 03-12-1996 11-05-1995 18-04-2002 28-11-2002 21-08-1996 01-02-2003 11-05-1995 25-07-1996 05-02-1998 23-05-1995 26-11-1996 11-05-1995 05-10-2000 19-04-2001 21-08-1996 01-03-2001 11-05-1995 27-06-1995 04-07-1995 25-11-1993 26-03-1992 02-06-1992 22-03-1992 23-01-1997 15-05-1997 25-03-1992 16-03-1997 30-04-1999 26-08-1994 27-05-1992
US 5044034	A	03-09-1991	NONE		
EP 0558337	A	01-09-1993	US 5404607 A AU 663920 B2 AU 663921 B2 AU 3373793 A BR 9300705 A DE 69307358 D1 DE 69307358 T2 EP 0558337 A1 ES 2096201 T3 NZ 245991 A US 5664275 A US 5797156 A US 5974647 A CA 2090195 A1 US 5285547 A ZA 9301377 A US 5303444 A US 5371910 A ZA 9301380 A US 5274868 A ZA 9301378 A	11-04-1995 26-10-1995 26-10-1995 02-09-1993 31-08-1993 27-02-1997 12-06-1997 01-09-1993 01-03-1997 26-07-1995 09-09-1997 25-08-1998 02-11-1999 29-08-1993 15-02-1994 23-09-1993 19-04-1994 13-12-1994 21-10-1993 04-01-1994 23-09-1993	

# INTERNATIONAL SEARCH REPORT

International	Application No
PCT/CZ	03/00035

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
EP 0558337	A	US	5386607 A	07-02-1995
		US	5261287 A	16-11-1993
		ZA	9301379 A	23-09-1993
		US	5259258 A	09-11-1993
		US	5259082 A	09-11-1993
EP 0475736	A 18-03-1992	AT	137296 T	15-05-1996
		AU	637934 B2	10-06-1993
		AU	8381991 A	19-03-1992
		DE	69119006 D1	30-05-1996
		DE	69119006 T2	12-06-1997
		EP	0475736 A1	18-03-1992
		ES	2087973 T3	01-08-1996
		US	5226205 A	13-07-1993
		ZA	9107219 A	27-05-1992
WO 9961790	A 02-12-1999	AU	3594099 A	13-12-1999
		BR	9910636 A	06-02-2001
		WO	9961790 A1	02-12-1999
		EP	1082538 A1	14-03-2001
		JP	2002516958 T	11-06-2002